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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,143

07/12/2006

Kenji Fujiwara

KUD-007

6701

32628

7590

03/05/2009

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EXAMINER

SWENSON, BRIAN L

ART UNIT

PAPER NUMBER

3618

MAIL DATE

DELIVERY MODE

03/05/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,143	Applicant(s) FUJIWARA ET AL.	
	Examiner BRIAN SWENSON	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-14 is/are allowed.
- 6) ☒ Claim(s) 17-19 is/are rejected.
- 7) ☒ Claim(s) 15-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/6/06, 7/12/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,804,947 issued to Nii et al. in view of U.S. Patent No. 5,915,488 issued to Fliege.

Nii et al. teach in Figures 1-10 and respective portions of the specification of a series hybrid electric vehicle comprising: an engine (22); a three-phase (Col. 5, line 17) generator (24) driven by said engine; a rectifier (26) generating a direct voltage from a three-phase voltage received from said three-phase generator; a battery (14) charged with said direct voltage; a motor (10) driving a drive wheel (18); and an inverter (12) driving said motor on said direct voltage received from said rectifier and/or a direct voltage received from said battery (Col. 4, lines 62-66); and the three-phase generator includes three armature windings; shown schematically in Figure 1 three windings are shown connecting the generator and the rectifier.

Nii et al. disclose the claimed invention except for showing a star-delta switch mechanism, wherein said star-delta switching mechanism connects said armature windings in selected one of a star connection and a delta connection.

Fliege teaching in Figures 1-9 and respective portions of the specification of a hybrid vehicle, Fliege teaches of a star-delta switch mechanism (25B), wherein said star-delta switching mechanism connects said armature windings in selected one of a star connection and a delta connection (see Col. 7, lines 53-62 and Col. 10, lines 1-30).

It would have been obvious to one having ordinary skill in the art at the time of invention to provide a star-delta switching mechanism, as taught by Fliege, in the invention taught by Nii et al., based on Fliege's teachings that a star-delta switch is provide on a vehicle to provide the advantage of giving the vehicle a an emergency off device to interrupt the operating power path in emergency situation (see Col. 1, lines 48-55, Col. 7, lines 53-62 and Col. 10, lines 1-30); such an incorporation of a star-delta switch in the vehicle taught by Fliege would increase the safety of the vehicle.

Moreover, the combination of Fliege's teachings of a star-delta switch within the vehicle taught by Nii et al. would result in a predictable variation that one of ordinary skill in the art would recognize as no more than the predictable use of prior art elements according to their established functions, which has been held unpatentable under 35 U.S.C. 103(a), absent evidence that the modifications necessary to effect the combination of elements is uniquely challenging or difficult for one of ordinary skill in the art. Ex Parte Smith, 83 USPQ.2d 1509, 1518-19 (BPAI, 2007) (citing KSR v. Teleflex, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007)).

In re claim 16, see Col. 9, lines 30 through Col. 10, lines 55 of Fliege, and see also the Background Information where Fliege teaches that the torque and speed of an

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electric motor can be changed by means of a plurality of controllable switches (Col. 1, lines 43-48).

Allowable Subject Matter

Claims 10-14 allowed.

Claims 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The primary reason for the indication of allowable subject matter in this case is the inclusion of: a switch for a series hybrid electric vehicle that includes an engine, motor, battery, rectifier and an n-phase generator where the n-phase generator includes n armature windings each having a first end connected to a common neutral point, wherein the rectifier includes: a negative terminal; a positive terminal on which a higher potential is generated than on said negative terminal; and n rectifying arms, wherein each of the n rectifying arms comprises: a first diode connected between the negative terminal and an intermediate node connected to second end of corresponding one of the n armature windings; and a second diode connected between the intermediate node and the positive terminal, and wherein the switch is connected between the neutral point and the negative terminal, in combination with the other elements recited, not found in the prior art of record.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,812,670 issued to Minamiura, U.S. Patent No. 6,759,832 issued to Minamiura, U.S. Patent No. 6,877,578 issued to Krzesicki et al., and U.S. Patent No. 5,545,928 issued to Kotani all teach of various series hybrid vehicles with an engines, generators, motors inverters and rectifiers.

U.S. Patent No. 6,713,889 issued to Dietz et al. and U.S. Patent No. 5,675,222 issued to Fliege teach of using star-delta switches on a vehicle.

U.S. Patent No. 5,177,460 issued to Dhyanchand et al. teach of a star-delta inverter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN SWENSON whose telephone number is (571)272-6699. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher P Ellis/
Supervisory Patent Examiner, Art Unit 3618

Brian Swenson
Examiner
Art Unit 3618

/B. S./
Examiner, Art Unit 3618